Amendments to the Drawings:

The attached two sheets of drawings include changes to Figures 4A, 4B, 6A, 6C, and 6D. The first replacement sheet, which includes Figures 4A and 4B, replaces the original sheet including Figures 4A and 4B. The second replacement sheet, which includes Figures 6A through 6D, replaces the original sheet including these figures.

Attachment: Replacement Sheets

Annotated Sheets Showing Changes

REMARKS/ARGUMENTS

Claims 1–18 are pending in the above-captioned application and stand rejected. With this paper, claims 1, 16, and 17 are amended. No new matter was added with the amendment.

I. Priority

Applicants acknowledge the Examiner's decision to accord the present claims no benefit from the earlier application dates of the preceding cases.

II. Specification

The specification was objected to because of informalities. All of the Examiner's objections have been addressed in the amendments to the specification on pages 2 through 7 of this paper.

III. Drawings

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "210" and "212" were used in Figure 2 to designate both regions and fluids, as defined in paragraph 0048 of the specification. Applicants have amended the specification such that these characters designate only fluids. Please see page 3 of this paper.

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference signs mentioned in the description: "300", "400", "402a" "408", "410", "416", "418", and "700". Mention of reference sign "300" in paragraph 0056 has been eliminated, as seen on page 4 of the present paper. Figure 4B has been amended to add the reference characters "408" and "410" to the figure, as seen in the attached replacement sheet. The description has been amended to eliminate reference to "400" in paragraph 0042, as indicated on page 2 of the present paper. Mention of reference sign "700" in paragraph 0058 has been eliminated, as seen on page 5 of the present paper.

The drawings were objected to as failing to comply with 37 CFR 1.84(p)(5) because the reference characters "600", "692", "694", and "696", seen in one or more of Figures 6A, 6C, and 6D were not mentioned in the description. These characters have been

removed from the figures, and a replacement drawing sheet has been provided along with an annotated sheet showing the changes.

IV. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004)

Claims 1, 3–11, 16, and 18 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004). The rejection of these claims is respectfully traversed.

To warrant rejection under 35 U.S.C. § 103(a), "the prior art reference (or references when combined) must teach or suggest all the claim limitations." See MPEP § 2142.

With regard to currently amended claim 1, at a minimum, neither Williams et al. nor Parce et al. teach loading first and second reactants into a channel and controlling the residence time of these reactants within a serpentine reaction region of the channel to form a sample material comprising at least a first species. The claim has been amended to more particularly point out and distinctly claim Applicants' invention. Support for the amendments to claim 1 can be found in paragraph 0058, beginning on page 17, and in FIG. 7. Specifically, support for the serpentine reaction channel region can be found in FIG. 7 at **730**. Support for the first and second reactants can be found in paragraph 0058, lines 6–8 on page 18. Support for hydrodynamically loading the first and second reactants into the first channel can be found in paragraph 0058, lines 1 and 2 on page 18. Support for controlling the residence time of the first and second reactants within the serpentine reaction channel region can be found in paragraph 0058, lines 9–11 on page 18. Thus, no new matter has been added by the amendment of claim 1. Please note that claims 16 and 17 have been amended to conform the terminology of these claims to that of claim 1.

Thus, as supported by paragraph 0058, claim 1 recites hydrodynamically loading first and second reactants into a first channel and controlling the dwell time of the first and second reactants within a serpentine reaction region of the first channel, during which dwell time the first and second reactants combine to form a sample material comprising at least a first species. The first channel intersects a fourth channel, and the sample material is directed into second and third channels via the fourth channel. A high conductivity buffer is concomitantly

loaded from opposite ends of the fourth channel into the second and third channels, forming at least two fluidic interfaces between the sample material, which is in a low conductivity buffer, and the high conductivity buffer. An electric field is applied along the length of the fourth channel to concentrate the first species at one or more of the fluidic interfaces, and detection of the first species is thereby enhanced.

Williams et al. teach electrophoretic loading of a single material. Because only a single material is loaded, Williams et al. are silent with regard to controlling the dwell time of two reactants within a channel region, during which time the two reactants combine to form a sample material comprising at least a first species. Further, Williams et al. are silent with regard to a serpentine reaction region within a channel.

At a minimum, Parce et al. are similarly silent with regard to controlling the dwell time of two reactants within a serpentine reaction channel region. Therefore, the combination of Williams et al. and Parce et al. does not teach or suggest all of the limitations of Applicants' currently amended claim 1. Withdrawal of the rejection of claim 1 under 35 U.S.C. § 103(a) over Williams et al. in view of Parce et al. is respectfully requested.

Claims 3–11, 16, and 18 depend directly or indirectly from claim 1. Any claim depending from a nonobvious claim is also nonobvious. See MPEP § 2143.03 and *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, dependent claims 3–11, 16, and 18 are nonobvious. Withdrawal of the rejection of these claims under 35 U.S.C. § 103(a) over Williams et al. in view of Parce et al. is, therefore, respectfully requested.

V. Claim rejections under 35 U.S.C. § 103(a) as being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004) and further in view of Williams et al. (US 2002/0079223)

Claims 12–15 and 17 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004) as applied to claim 1 and further in view of Williams et al. (US 2002/0079223). The rejection of these claims is respectfully traversed.

As demonstrated above, the combination of Williams et al. (US 2002/0008029) and Parce et al. (US 5,869,004) fails to teach all of the limitations of currently amended claim 1,

from which claims 12–15 and 17 depend. At a minimum, Williams et al. (US 2002/0079223) fails to teach controlling the dwell time of two reactants within a channel that includes a serpentine reaction region. Therefore, currently amended claim 1 is nonobvious over the combination of Williams et al. (US 2002/0008029), Parce et al., and Williams et al. (US 2002/0079223). As any claim depending from a nonobvious claim is also nonobvious, dependent claims 12–15 and 17 are allowable. Withdrawal of the rejection of these claims is respectfully requested.

VI. Claim rejection under 35 U.S.C. § 103(a) as being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004) and further in view of Williams et al. (US 2002/0079223)

Claim 2 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Williams et al. (US 2002/0008029) in view of Parce et al. (US 5,869,004) as applied to claim 1 and further in view of Kopf-Sill (US 6,001,231). The rejection of these claims is respectfully traversed.

As demonstrated above, the combination of Williams et al. (US 2002/0008029) and Parce et al. (US 5,869,004) fails to teach all of the limitations of currently amended claim 1, from which claim 2 depends. At a minimum, Kopf-Sill (US 6,001,231) fails to teach controlling the dwell time of two reactants within a channel that includes a serpentine reaction region. Therefore, currently amended claim 1 is nonobvious over the combination of Williams et al. (US 2002/0008029), Parce et al., and Kopf-Sill. As any claim depending from a nonobvious claim is also nonobvious, dependent claim 2 is allowable. Withdrawal of the rejection of claim 2 is respectfully requested.

Conclusion

For the foregoing reasons, Applicants believe all the pending claims are in condition for allowance and should be passed to issue. If the Examiner feels that a telephone conference would in any way expedite the prosecution of the application, please do not hesitate to call the undersigned attorney.

Respectfully submitted,

Ann C. Petersen
Reg. No. 55,536

CALIPER LIFE SCIENCES, INC.
605 Fairchild Drive
Mountain View, CA 94043
Direct: 650-623-0667
Fax: 650-623-0504
ann.petersen@caliperLS.com

Annotated Sheet

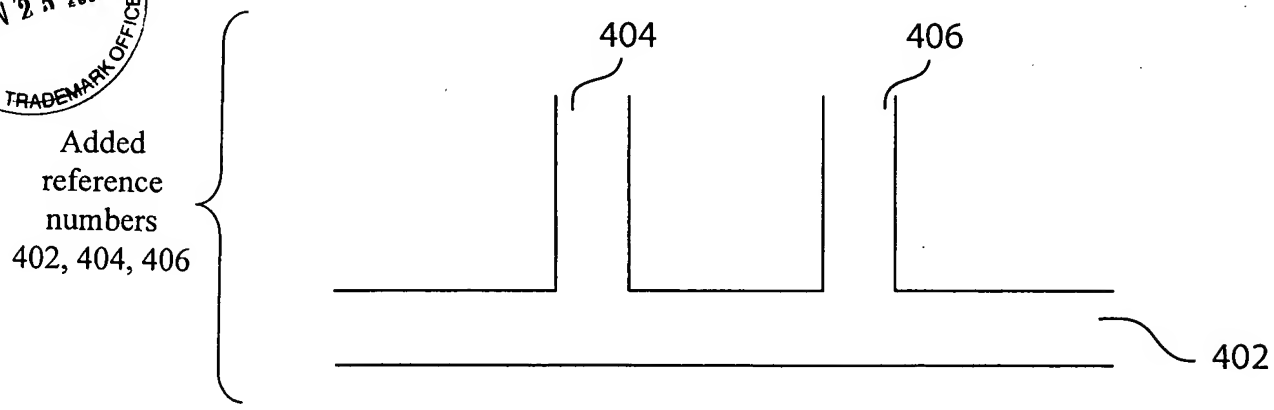

Figure 4A

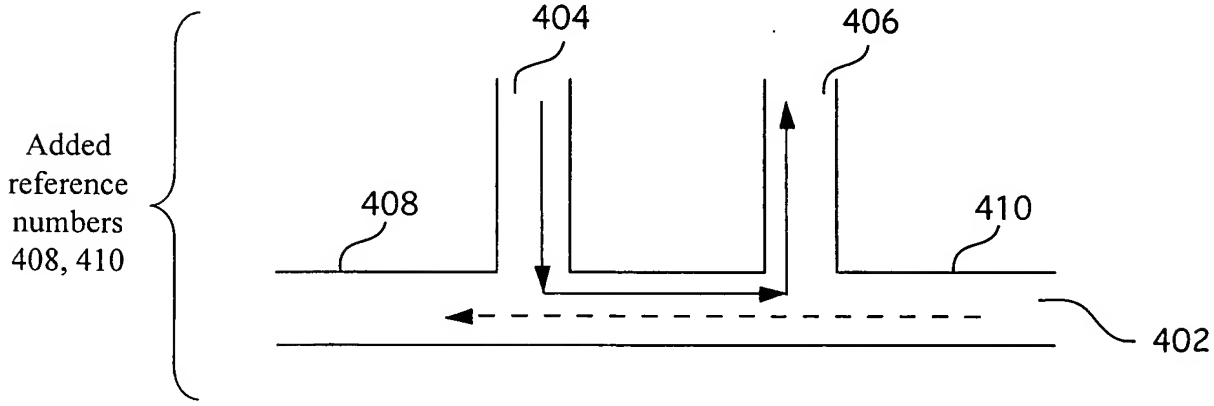

Figure 4B

Annotated Sheet

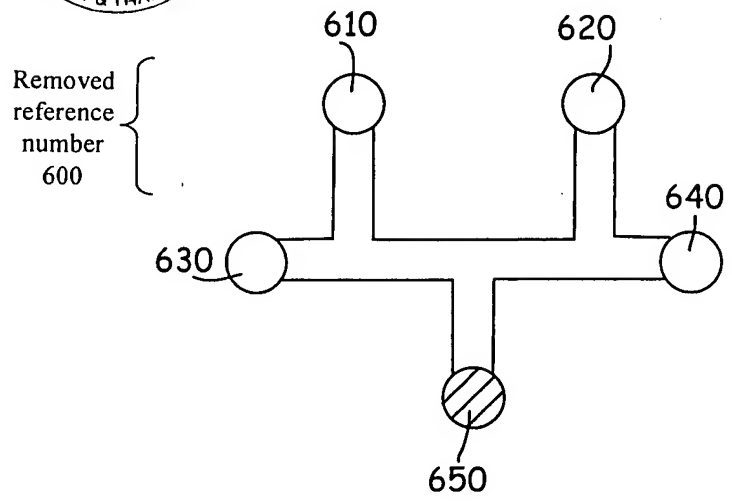

Fig. 6A

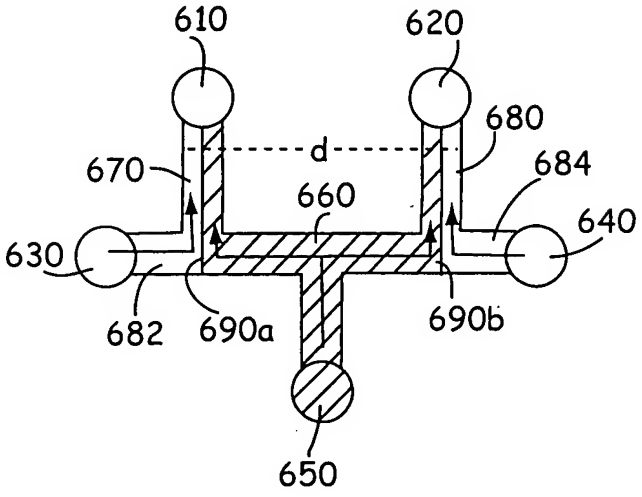

Fig. 6B

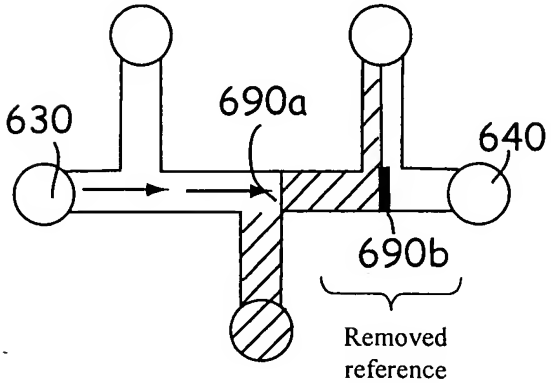

Fig. 6C

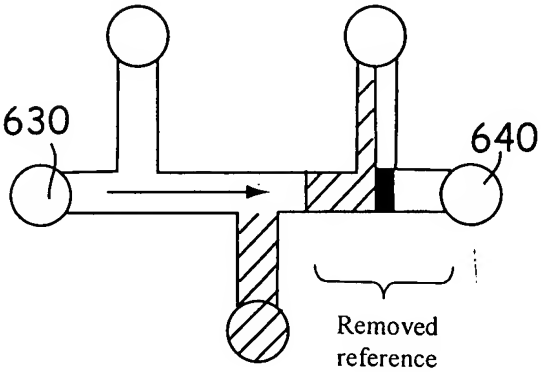

Fig. 6D